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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,333	03/26/2001	Yatin R. Acharya	F0691	6324

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EXAMINER
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WONG, BLANCHE

ART UNIT	PAPER NUMBER
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2616

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/816,333

Applicant(s)

ACHARYA ET AL.

Examiner

Blanche Wong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,8-11 and 13-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21 and 22 is/are allowed.
- 6) ☒ Claim(s) 1-4,9-11,14-17 and 19 is/are rejected.
- 7) ☒ Claim(s) 8,13,18 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed July 25, 2006 have been fully considered but they are not persuasive.

Applicant contends that reference MA does not disclose or suggest "memory configured to store a plurality of priority levels, one for each of the plurality of classes of service" or "a port vector queue configured to use the action tag from the action generator for each of the received data frames to access the memory to retrieve one of the stored priority levels that corresponds to a class of service specified by each of the received data frames" in the cited portions of MA. Remarks, p.10. Examiner disagrees.

With regard to col. 9, lines 29-67, Examiner refers Applicant to "*each queued packet may have a different associated priority level which specifies the particular QoS level ...*" [with emphasis]. A queue that stores packets with different priority level is in essence, a memory that stores a plurality of priority levels, provided that each of the plurality of priority level is enclosed in packets. Each packet having a different associated priority level that specifies the particular QoS level is in essence, one priority level for each QoS level and each QoS level is a class of service. Each also implies more than one or multiple QoS or multiple classes of services. Therefore, MA does disclose or suggest a memory that stores a plurality of levels, one for each of multiple classes of service associated with received data frames.

With regard to col. 11, lines 8-16, Examiner refers Applicant to "... packets are dequeued ..." Dequeuing packets are in essence packets being retrieved. Taken together with Examiner's interpretations of col. 9, lines 29-67 (stored priority levels are

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priority levels within the packets, each priority level specifies a particular QoS level, and QoS level is class of service), priority levels are being retrieved as packets are dequeued and each priority level is associated with a class of service. Therefore, MA does disclose or suggest retrieving one of the stored priority levels that corresponds to a class of service specified by each of the received data frames.

With regard to col. 11, lines 61-65, Examiner refers Applicant to "... any data structure for storing and retrieving packets ... include an array of queues, ... a priority queue, a calendar queue, ... a FIFO queue, etc. Some queue data structure can be used in the processes of queuing and dequeuing. Taken together with Examiner's interpretations of col. 11, lines 8-16, which encompasses the interpretations of col. 11, lines 8-16, MA does disclose and suggestion not only a memory that stores a plurality of levels, one for each of multiple classes of service associated with received data frames, but also a queue that retrieves one of the stored priority levels that corresponds to a class of service specified by each of the received data frames.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1-3,9,10,14,17,19** are rejected under 35 U.S.C. 102(e) as being anticipated by Ma et al. (U.S. Pat No. 6,798,743).

With regard to claim 1, Ma discloses

a plurality of input ports (**multiple input interfaces 701, col. 9, ln. 30; see also input interfaces 1 to M in Fig. 7**) configured to receive a plurality of data frames (**data link frame, col. 9, ln. 45**), each of the received data frames specifying at least one of a plurality of classes of service (**particular QoS level, col. 9, ln. 35**);

a memory (**queued, col. 9, ln. 32; dequeued, col. 9, ln. 44**) configured to store a plurality of priority levels (**associated priority level, col.11, ln. 14**), one for each of the plurality of classes of service (**classification, col. 9, ln. 47; see also classification, col. 11, ln. 13**) (**see also para. 1 of this Office action**), wherein the memory includes one of a plurality of registers or a lookup table (**Routing Table look-up, col. 9, ln. 62**); and

an action generator (**any data structure including queues**)(**the intermediate data structure 814 may be any data structure suitable for storing and retrieving packets, col. 11, ln. 61-62**) configured to generate an action tag (**the priority value of a packet as an index, col. 12, ln. 22**) for each of the received data frames, wherein the action generator includes:

an action memory (**storing**)(**it is Examiner's position that storing would require some memory**) configured to store a plurality of entries;

a decoder (**index**)(**it is Examiner's position that an index is used to retrieve an entry within the data structure**) configured to identify one of the entries in the action memory in response to the received data frames, and

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a tag generator configured to generate the action tags (**index**) based on the identified entries; and

a port vector queue (**any data structure including queues**)(**the intermediate data structure 814 may be any data structure suitable for storing and retrieving packets, col. 11, ln. 61-62**) from the action generator for each of the received data frames to access the memory to retrieve one of the stored priority levels that corresponds to a class of service specified by each of the received data frames (**see para. 1 of this Office action**).

With regard to cl. 2, Ma further discloses a plurality of priority queues associated with each of a plurality of output ports of the network device (**QoS output queuing structure 710, col. 9, ln. 64**).

With regard to cl. 3, Ma further discloses the port vector queue is further configured to identify one of the priority queues for each of the received data frames based on the retrieved one of the stored priority levels (**the priority value of a packet as an index, col. 12, ln. 22**).

With regard to claim 9, see analysis for claim 1.

With regard to claim 10, see analysis for claim 3.

With regard to claim 14, see analysis for claim 1.

With regard to claim 17, Ma further discloses a memory that stores a lookup table **(Routing Table look-up, col. 9, ln. 62)**.

With regard to claim 19, Ma further discloses a port filter configured to apply policy rules **(delay-sensitive if its associated priority level is at least priority P or higher, col. 11, ln. 37)** to the data frames to identify one or more policy equations **(delay-sensitive and not delay-sensitive, col. 11, ln. 45)** corresponding to the data frames.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 4,11,15,16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma in view of Lefebvre et al. (Pub No. US 2002/0118691 A1).

With regard to claim 4, Ma discloses the system of claim 1. However, Ma fails to explicitly show a memory that is preprogrammed with the priority level information.

In an analogous art, Lefebvre discloses a memory that is preprogrammed with the priority level information **(Each of the distinct queue priority ... a memory register storing the corresponding associated priority value ... , para. [0043])**.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a memory that is preprogrammed with the priority level information in Ma's packet prioritization processing technique. The suggestion/motivation for doing so would have been to provide for prioritized data transmission. Lefebvre, para. [0004]. Therefore, it would have been obvious to combine Lefebvre with Ma, for the benefit of a memory that is preprogrammed with the priority level information for prioritized data transmission, to obtain the invention as specified in claim 4.

With regard to claim 11, Ma discloses method of claim 9. However, Ma fails to explicitly show a memory that includes a plurality of registers.

In an analogous art, Lefebvre discloses a memory that includes a plurality of registers (**priority values stored in memory registers, para. [0043]**).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a memory that includes a plurality of registers in Ma's packet prioritization processing technique. The suggestion/motivation for doing so would have been to provide for prioritized data transmission. Lefebvre, para. [0004]. Therefore, it would have been obvious to combine Lefebvre with Ma, for the benefit of a memory that includes a plurality of registers for prioritized data transmission, to obtain the invention as specified in claim 11.

With regard to claim 15, see analysis for claim 4.



With regard to claim 16, see analysis for claim 11.

***Allowable Subject Matter***

6. **Claims 21 and 22** are allowed.

7. Claims 8,13,18,20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 21, the prior art of record fails to anticipate or make obvious all limitations including “wherein the decoder is configured to receive the one or more policy equations corresponding to one of the data frames from the port filter, select one of the one or more policy equations, and use the selected policy equation to identify one of the entries in the action memory.” (See also claim 20)

With regard to claim 22, the prior art of record fails to anticipate or make obvious all limitations including “wherein each of the entries includes: ‘a differentiated services code point (DSCP)/priority field configured to store one of DSCP data and priority data relating to one of the classes of service, a deny field configured to store data indicating whether to drop a corresponding one of the received data frames, a forward-to-management field configured to store data indicating whether to forward the corresponding data frame to a management device, a priority field configured to store data indicating whether the DSCP/priority field stores valid priority data, and a DSCP

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field configured to store data indicating whether the DSCP/priority field stores valid DSCP data." (See also claim 8).

### **Conclusion**

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*BW*

BW

August 17, 2006

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